October 12, 1984

Docket No. 50-13

Mr. A. F. Olsen
Senior Licensing Administrator
R & D Division
Babcock & Wilcox Co.
P. O. Box 1260
Lynchburg, Virginia 24505

Dear Mr. Olsen:

The staff has initiated its review of the B&W application, dated August 7, 1984, for dismantlement and termination of the operating license for the CX-10 critical facility at Lynchburg, Virgina. In order to continue our review we need the additional information identified in the enclosed list of questions. A draft copy of these questions was sent to you on October 5, 1984.

As per Harold Bernard's recent telephone discussion with you, please have drafts of your responses to these questions available to discuss with the staff during our October 16, 1984 visit to your facility. Formal responses should be submitted on the docket by November 1, 1984.

Sincerely,

Original signed by
Herbert N. Berkow for
Cecil O. Thomas, Chief
Standardization and Special
Projects Branch
Division of Licensing

Enclosure:
As stated

cc: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

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Enclosure:
As stated

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cc w/enclosure(s):

Executive Secretary of
Campbell County
Rustburg, Virginia 24588

Commonwealth of Virginia
Council of the Environment
903 Ninth Street Office Building
Richmond, Virginia 23219

Attorney General
1101 East Broad Street
Richmond, Virginia 23219

ENCLOSURE

REQUEST FOR ADDITIONAL INFORMATION

B&W APPLICATION FOR CX-10 REACTOR DISMANTLEMENT AND LICENSE TERMINATION

1. Describe the operating experience of the CX-10 reactor with respect to:
   (a) Contamination events during reactor operation, including spills, radioactive leaks that could penetrate concrete and/or soil, and airborne radioactivity that could contaminate ventilation ductwork, piping etc, that may be of particular concern during dismantling and decontamination.

   (b) Existence of any high radiation areas due to radioactivity in systems.

   (c) Determination of the integrity of the liquid radwaste diposal system to verify the absence of leakage to the contiguous soil system.

   (d) Area and airborne radioactivity that may have been cause for grossly exceeding monitoring system alarm set-point levels.

   (e) Other radwaste effluent releases that may have exceeded technical specification limits.

   (f) Spent fuel handling and storage.

   (g) Any excessive activation of areas of the biological shield.

2. Section 4.4 of the plan states that pipes, drainlines and ductwork shall be surveyed for contamination provided that any contamination found at appropriate access points is likely to be representative of contamination in the interior of these systems. Is this the only alternative for such surveys? What will be the survey plan, if no appropriate access point is found, which could be used to be representative of contamination on the interior of pipes, etc.

3. The soil contamination limit proposed in your plan is 30 picocuries/gram for enriched uranium and 10 picocuries/gram for natural thorium and Th-232. Verify that the dose rate derived from this soil contamination meets 5μR/hr above natural background, as measured at one meter from the surface, or why the B&W level of 10μR/hr is appropriate.

4. The staff position for release for unrestricted use or unrestricted access is Regulatory Guide 1.86 or 5μR/hr above natural background at 1 meter. However, if it can be demonstrated that the maximum exposure to an individual from the radiation would be less than the staff's annual exposure limit of 10 mrem/yr because of potential occupancy in the vicinity of the radiation, than 10μR/hr may be an acceptable alternative. Do you intend to make this analysis or do you intend to change your release or access criteria, as addressed in Section 4.2, from 10μR/hr to 5μR/hr to be consistent with staff criteria?

5. Section 4.7.1 states that fixed contamination shall be measured with a PAC-4G. Discuss the methodology to be used to convert the count rate of the instrument into the surface contamination limits of R.G. 1.86 which gives these limits in units of d/m per 100 cm^2.

6. Section 4.7.2 specifies that standard smearing techniques shall be used. Please describe these techniques. The counting system to be used to count these smears is a gas proportional counter. Is this counter a laboratory counting system or a hand-held type survey meter? If the latter type instument, describe the instrument (commerical identification, if appropriate), and the counting procedure to be used to identify alpha vs beta contamination.

7. Section 4.7.3 states that an Eberline Model PRM-7 may be used to measure intrinsic activity. Please state how you will correct your instrument read-out for energy dependence, since a PRM-7 incorporates a scintillation detector which is factory calibrated to ^{137}Cs.

8. Will the High Resolution Gamma Spectroscopy system addressed in Section 4.7.4 be used to identify radioactive nuclides found in swipes, core samples, etc that may be taken during dismantling? If not, why not?

9. Section 9.0 alludes to decontamination of components to meet criteria specified in a plan for transfer to another licensed facility. Describe the decontamination procedure, packaging and shipping to be used for equipment listed in Section 6.3.1 to be transferred to DOE, or the equipment listed in Section 6.3.2 to be transferred to other licensed facilities. To what levels of radiation will this equipment be decontaminated? What are the provisions of the other (receiving) licenses?

10. What release limits are inferred in Section 6.3.3 that may cause facility equipment to be disposed of as radioactive waste? Describe the measurement procedures to be used to determine when these limits are exceeded.

11. Describe the training program for the individuals involved in dismantlement, including training of contractor personnel. The description should include the scope of training in decontamination and other decommissioning activities, health physics, and use and maintenance of radiation surveillance and monitoring equipment.

12. Describe the termination radiation survey plan to demonstrate that the facility will meet the criteria for release for unrestricted use. The description should include (a) proposed method for assuring that sufficient data and all pertinent structures, systems and components are included in the survey, (b) the type of radiation readings, and (c) the type, operating condition and calibration of instruments used.

13. Discuss potential accidents and consequences that have been considered for the dismantling operation.

14. Provide pre-decommissioning baseline radiation survey data and soil contamination levels, including identification of radionuclides.